

ABSTRACT OF THE DISCLOSURE

A method of providing even nucleation between silicon and oxide surfaces for growing uniformly thin silicon nitride layers used in semiconductor devices. First, a nonconductive nitride-nucleation enhancing monolayer is formed over a semiconductor assembly having both nitridation receptive and resistive materials. For purposes of the present invention, a nitride-nucleation enhancing monolayer is a material that will readily accept the bonding of nitrogen atoms to the material itself. Next, a silicon nitride layer is formed over the nonconductive nitride-nucleation enhancing monolayer. The nonconductive nitride-nucleation enhancing monolayer provides even nucleation over both the nitridation receptive material and the nitridation resistive material for silicon nitride, thereby allowing for the growth of a uniformly thin nitride layer.